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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/623,092

07/18/2003

Joseph W. Roos

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2887

34769

7590

06/14/2006

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(FORMERLY ETHYL CORPORATION)  
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RICHMOND, VA 23219

EXAMINER

MARCANTONI, PAUL D

ART UNIT

PAPER NUMBER

1755

DATE MAILED: 06/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

### Period for Reply

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2006.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,3-10, and 12-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

Applicant's arguments filed 5/22/06 have been fully considered but they are not persuasive.

35 USC 112 Second Paragraph: (Withdrawn)

This rejection has been withdrawn as applicants have amended their claim with a specific range of amounts of manganese atoms to particularly point out and distinctly claim their invention.

Obviousness Type Double Patenting:

Claims 1, 3-10, and 12-20 remain provisionally rejected under the judicially created doctrine of obviousness type double patenting as being unpatentable over claims 1-21 of copending application no. 10/623,686 (US Pat Pub 2005/0016057). This is a provisional obviousness type double patenting rejection.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Applicants still have not submitted a terminal disclaimer and thus the ODP rejection above remains as stated above. The applicants did not address the ODP in their last response. It is also noted that the submission of a terminal disclaimer after final rejection can be considered as not to be a timely filed terminal disclaimer because applicants had the opportunity prior to final rejection to submit it and did not do so.

**35 USC 102/103:**

Claims 16-18 remain rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kukin (US Patent No. 3,837,820).

Kukin '820 teaches a coal/combustion additive (see col.1, lines 40-45) that is a manganese containing substance that explicitly teaches reducing the amount of carbon in the fly ash because manganese is known to be a carbon destroying catalyst (see col.4, lines 5-9) thus anticipating applicants' claimed invention. Further, even if not anticipated, overlapping ranges of amounts of the same components in the claimed coal additives would have been prima facie obvious to one of ordinary skill in the art.

Also, Kukin does not teach an organo-metallic manganese compound yet an organometallic manganese compound is a species that still falls in the genus of "manganese containing substance that reduces the carbon in fly ash". One of ordinary skill in the art would have understood to use any organic or inorganic manganese containing compound for reducing carbon in fly ash.

**35 USC 103:**

Claims 1, 3-10, and 12-20 are rejected under 35 USC 103(a) as obvious over Kerley '992, Kukin '503, or Rolfe '916 alone or in view of Kukin '820.

Kerley '992 teaches that his manganese containing substance (ie cyclomatic metal compound) is used to remove carbon from the combustion products. One of ordinary skill in the art would have understood that "fly ash" is a combustion product

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(see col.3, last three lines and col.4 lines 1-8). Kerley teaches he wants to insure the complete absence of carbon in his combustion product (ie "fly ash") and thus he does so by using the manganese compounds to carry through this function.

Even if that is not enough, Kukin '820 teaches that manganese containing substances such as those within Kerley's teaching would have been understood by one of ordinary skill in the art and known by that person to reduce the amount of carbon in the fly ash because manganese is known to be a carbon destroying catalyst (col.4, lines 5-9).

Kukin '503 teaches a coal additive (col.1 lines 43-45) that is an activated manganese that can be used to improve the fuel's (e.g. coal) burning properties to prevent buildup of carbon deposits. Hence, Kukin '503 teaches a desire to reduce the amount of carbon. Kukin '503 also teaches his activated manganese additive as a "smoke reducing and soot destroying catalyst". Note soot is unburned carbon and Kukin teaches the reduction of carbon particles including those on the combustion products such as fly ash in a coal burning process.

Again, even if that is not enough, Kukin '820 teaches that manganese containing substances such as those within Kukin '503' teaching would have been understood by one of ordinary skill in the art and known by that person to reduce the amount of carbon in the fly ash and other combustion products because manganese is known to be a carbon destroying catalyst (col.4, lines 5-9).

Rolfe '916 teaches it is known to add manganese complex additive to reduce carbon particles (see, for example, col.2, lines 67-70). Again, even if that is not enough, Kukin '820 teaches that manganese containing substances such as those within Rolfe '916 teaching would have been understood by one of ordinary skill in the art and known by that person to reduce the amount of carbon in the fly ash and other combustion products because manganese is known to be a carbon destroying catalyst (col.4, lines 5-9).

#### **Previous Response:**

The examiner notes that the grounds of rejection has been changed as noted above but he will address some of applicants' remarks and comments.

The applicants argue that Kukin '820 does not teach organometallic compounds. In rebuttal, applicants argue a limitation not present in all of their claims (e.g. claim 1) and it is improper to argue a limitation not in the claims. "Organometallic manganese compounds are not present in any of applicant's independent claims. There is also no teaching in Kukin '820 limiting his invention to inorganic manganese and it should be noted that both inorganic and organic manganese compounds for removing carbon were old and known at the time of applicants' invention.

The applicants then argue that Kukin '820 has no discussion or disclosure of the use of manganese to affect the amount of carbon in fly ash. This is factually incorrect because Kukin '820 teaches the following in column 4, lines 5-9:



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*With many fuels it is preferred that the combustion chamber additive be a manganese-containing substance. Such a substance reduces the amount of carbon in the fly ash because manganese is known to be a carbon destroying catalyst.*

Kukin '503 teaches it is old to add a manganese containing additive to prevent carbon deposit buildup (col.1, lines 40-45). While Kukin may teach "soot destroying catalysts" or "smoke reducing agents", applicants state that Kukin '503 draws a distinction between effectiveness with respect to smoke/soot and fly ash. The examiner disagrees. There is no distinction in removing carbon because that is exactly what is being done by adding a manganese containing additive. There is also no teaching regarding effectiveness of carbon removal of fly ash and versus soot/smoke so it is unclear where applicants support is for their statement. More so, even if he does not state what occurs when manganese containing additive is utilized in a combustion process such as coal burning. Kukin '820 teaches that is is old and known in the art to add a manganese containing substance to reduce the amount of carbon in fly ash because carbon is known to be a carbon destroying catalyst (col.4, lines 5-9 of Kukin again).

The applicants also argue particle size of 0.01 larger than that of their invention. In rebuttal, applicants argue a limitation not claimed for their invention. There is no particle size in any of their independent claim and it would be improper to read any particle size into those claims. There does not appear even to be a particle size range for their manganese compounds in the applicants' specification.

The applicants also argue that the organometallic additive does not deliver the benefits sought versus their claimed invention. Again, applicants argue a limitation not in their independent claim because there is not organometallic limitation in any of the independent claims.

The applicants also refer the examiner to Tables I through IV as well in addition to Table I originally mentioned by the examiner. In rebuttal, it seems that Tables II through IV are irrelevant because they refer not to coal combustion but to slag. The applicants are again referred back to Table I (Fuel Ash Test) wherein it teaches for example 5 (which, by the way, appears to be the only example that is coal combustion), the characteristics of the fly ash are a "loose, finely powdered, and no adherence to the dish". That looks like a favorable result thus for a manganese additive for fly ash from coal combustion. The other samples are not relevant related to fuel oil because they are not involving "coal" combustion.

The applicants argue that Kerley only teaches reduction of smoke and soot (soot is unburned carbon so it teaches reducing unburned carbon) and does not teach reducing carbon in fly ash. In rebuttal, the examiner disagrees.

Kerley '992 teaches that his manganese containing substance (ie cyclomatic metal compound) is used to remove carbon from the "combustion products". One of ordinary skill in the art would have understood that "fly ash" is a combustion product (see col.3, last three lines and col.4 lines 1-8). Kerley teaches he wants to insure the complete

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absence of carbon in his combustion product (ie "fly ash) and thus he does so by using the manganese compounds to carry through this function.

Even if that is not enough, Kukin '820 teaches that manganese containing substances such as those within Kerley's teaching would have been understood by one of ordinary skill in the art and known by that person to reduce the amount of carbon in the fly ash because manganese is known to be a carbon destroying catalyst (col.4, lines 5-9).

The applicants would appear to agree that Rolfe '916 teaches it is known to add manganese complex additive to reduce carbon particles (see, for example, col.2, lines 67-70) yet they argue that Rolfe does not teach carbon removal for fly ash. The examiner disagrees and notes that one of ordinary skill in the art would have understood that manganese additive effectively reduces carbon in fly ash. Kukin '820 teaches that manganese containing substances such as those within Rolfe '916 teaching would have been understood by one of ordinary skill in the art and known by that person to reduce the amount of carbon in the fly ash and other combustion products because manganese is known to be a carbon destroying catalyst (col.4, lines 5-9).

**Response to 5/22/06 Amendment and Arguments:**

The applicants argue that Kukin '820 does not teach an "organometallic" manganese compound additive that is used in a coal combustion chamber to lower or reduce the amount of carbon in fly ash. In rebuttal, there would not appear to be a teaching of 0.01 microns in this reference. The applicants argue particle size as critical for their invention versus allegedly larger particles for Kukin '820. In rebuttal, Kukin does not limit his manganese containing substance to any particular particle size but only requires that it actually be *a manganese containing substance*. The applicants manganese compound atomic clusters are still a manganese containing substance and would appear anticipated by Kukin '820. Even if not anticipated, Kukin '820 requires only a manganese containing substance (ie "any") to reduce carbon and would at least render applicants' invention obvious to one of ordinary skill in the art.

The applicants also argue that a particular organometallic compound of manganese does not deliver the benefits of their invention set forth in Table I. It is unclear which example applicants refer to but this fuel ash test of Table I does not indicate if the amount of carbon in fly ash has been lowered or reduced.

The applicants did not go into discussion of the remaining references with respect to manganese containing compound that reduce the carbon content of fly ash. In rebuttal, it is known and old in the art especially as shown by Kukin '820 that the use of a specific manganese containing substance or compound to reduce carbon content of fly ash would have been an obvious design choice for one of ordinary skill in the art. The applicants merely argue that they use a different manganese compound that is allegedly different than the prior art and thus warrants patentability over the prior art. Yet, Kukin '820 makes no distinction about the particular type of manganese compound that can be added to reduce carbon in fly ash. The applicants also have not shown that the use of their specific type of organometallic manganese compounds produces and unexpected result over the prior art manganese compounds that also reduce fly ash. The applicants have presented no evidence in declaration form or from their specification showing that this particular manganese compound of their claimed invention leads to an unexpected result of possibly a substantially far greater reduction in carbon in fly ash than the references used in the examiner's rejection. For that reason and those presented above, the finality of this office action is now proper.

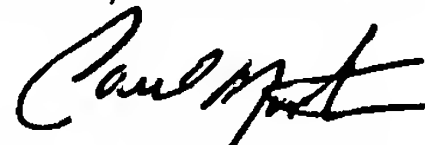


**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Marcantoni whose telephone number is 571-272-1373. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Paul Marcantoni  
Primary Examiner  
Art Unit 1755